

Evidence for a higher number of species of *Odontotermes* (Isoptera) than currently known from Peninsular Malaysia from Mitochondrial DNA Phylogenies.

ABSTRACT

Termites of the genus *Odontotermes* are important decomposers in the Old World tropics and are sometimes important pests of crops, timber and trees. The species within the genus often have overlapping size ranges and are difficult to differentiate based on morphology. As a result, the taxonomy of *Odontotermes* in Peninsular Malaysia has not been adequately worked out. In this study, we examined the phylogeny of 40 samples of *Odontotermes* from Peninsular Malaysia using two mitochondrial DNA regions, that is, the 16S ribosomal RNA and cytochrome oxidase subunit I genes, to aid in elucidating the number of species in the peninsula. Phylogenies were reconstructed from the individual gene and combined gene data sets using parsimony and likelihood criteria. The phylogenies supported the presence of up to eleven species in Peninsular Malaysia, which were identified as *O. escherichi*, *O. hainanensis*, *O. javanicus*, *O. longignathus*, *O. malaccensis*, *O. oblongatus*, *O. paraoblongatus*, *O. sarawakensis*, and three possibly new species. Additionally, some of our taxa are thought to comprise a complex of two or more species. The number of species found in this study using DNA methods was more than the initial nine species thought to occur in Peninsular Malaysia. The support values for the clades and morphology of the soldiers provided further evidence for the existence of eleven or more species. Higher resolution genetic markers such as microsatellites would be required to confirm the presence of cryptic species in some taxa.

Keyword: *Odontotermes*; Mitochondrial DNA; Phylogenies; Species; Peninsular Malaysia.